



327019

**SAMPLING AND ANALYSIS PLAN
FOR THE
LANE ST. GROUNDWATER SITE
ELKHART, ELKHART COUNTY, INDIANA**

Prepared for
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region V

Prepared by
WESTON SOLUTIONS, INC.
Region V Superfund Technical Assessment and Response Team

June 12, 2008

Approved by: _____ Date: _____

U.S. EPA Region V
On-Scene Coordinator

Project Dates of Sampling:	June 16, 2008
CERCLA Site/Spill Identifier No.:	TBD
Contract Name:	START III
Contract No.:	EP-S5-06-04
Technical Direction Document No.:	S05-0002-0708-025
Document Control No.:	279-4H-ACR1

ACRONYM LIST

CLP	Contract Laboratory Program
COC	Chain-of-Custody
MS/MSD	Matrix Spike/ Matrix Spike Duplicate
OSC	On-Scene Coordinator
ppb	Part Per Billion
PPE	Personal Protective Equipment
PRP	Potentially Responsible Party
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RAL	Removal Action Level
SAP	Sampling and Analysis Plan
SOP	Standard Operating Procedure
SVOC	Semivolatile Organic Compound
START	Superfund Technical Assessment and Response Team
U.S. EPA	United States Environmental Protection Agency
VC	Vinyl Chloride
VOC	Volatile Organic Compound
VRP	Voluntary Remediation Program
IDEM	Indiana Department of Environmental Management
WESTON	Weston Solutions, Inc.

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1.0 Introduction

This Sampling and Analysis Plan (SAP) identifies the data collection activities and associated quality assurance/quality control (QA/QC) measures specific to the Lane St. Groundwater Site (the Site) located in Elkhart, Elkhart County, Indiana. All data will be generated in accordance with the quality requirements described in the *START III Generic QAPP*, dated June 2006. The purpose of this SAP is to describe site-specific tasks that will be performed in support of the stated objectives. The SAP will reference the QAPP for generic tasks common to all data collection activities including routine procedures for sampling and analysis, sample documentation, equipment decontamination, sample handling, data management, assessment, and data review. Additional site-specific procedures and/or modifications to procedures described in the *START III Generic QAPP* are described in the following SAP elements.

This SAP is prepared, reviewed, and approved in accordance with the procedures detailed in the *START III Generic QAPP*. Any deviations or modifications to the approved SAP will be documented using **Table 1: SAP Revision Form**.

2.0 Project Management and SAP Distribution and Project Team Member List

Management of the Site will be as documented in the *START III Generic QAPP*. Refer to the *START III Generic QAPP* for an organizational chart, communication pathways, personnel responsibilities and qualifications, and special personnel training requirements.

The following personnel will be involved in planning and/or technical activities performed for this data collection activity. Each will receive a copy of the approved SAP. A copy of the SAP will also be retained in the site file.

Personnel	Title	Organization	Phone Number	Email
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Pamela Bayles	QA Reviewer	START	847-918-4030	pamela.bayles@westonsolutions.com

NOTES:

OSC – On-Scene Coordinator

QA – Quality Assurance

START – Superfund Technical Assessment and Response Team

U.S. EPA – United States Environmental Protection Agency



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3.0 Planning and Problem Definition

3.1 Problem Definition

A Voluntary Remediation Project (VRP) was identified at the GeoCel Facility in Elkhart, Indiana which includes an associated groundwater contaminant plume. A local resident, hearing of groundwater contamination, was concerned and had their water supply well test for contamination. The resident identified that their well was in fact contaminated and notified the Indiana Department of Environmental management (IDEM). IDEM subsequently responded by sampling numerous wells in the neighbourhood along Lane Street. At the request of IDEM, U.S. EPA is confirming the groundwater sampling results by sampling a random number of the groundwater supply well for those residences. Approximately ten (10) residential groundwater supply wells are to be sampled for volatile organic compounds (VOCs) which are the identified contaminants of concern (COCs).

3.2 Site History and Background

The Site consists of a groundwater plume of contamination and potentially affected residential area located in Elkhart, Elkhart County, Indiana. The source of the plume is the existing GeoCell VRP Site. The area to be sampled is along Lane Street in Elkhart, Indiana. The GeoCel site is located on County Road 6 northeast of lane Street (Figure 3-1).

As a result of news reports documenting the VRP cleanup at the GeoCell Site in Elkhart, IN, a local resident was concerned and had their well water tested by a private laboratory. The test results indicated Trichloroethylene (TCE) in exceedence of IDEM regulatory levels for residential wells. In response to this result, the resident notified IDEM and an investigation into the extent of the groundwater contamination in the area followed. IDEM tested the resident's well and discovered contamination, but at significantly lower concentrations than the resident reported. IDEM then tested numerous private water supplies along Lane Street on August 30 and 31, 2007. In order to validate IDEM's analytical from the August sampling event, a request was sent to have U.S. EPA re-sample a random number of the wells along Lane Street for the same analytical parameters at a date soon after the initial sampling.

On September 5, 2007, U.S. EPA and WESTON START collected samples from eight residential groundwater wells on Lane Street to confirm the results of previous sampling performed by IDEM and assess the Site for potential U.S. EPA action. U.S. EPA and WESTON START obtained signed access agreements from the owners of eight residences and sampled their drinking water source for volatile organic compounds (VOC). The presence of TCE above IDEM regulatory limits was confirmed.

Once the presence of TCE was confirmed in groundwater at the Site, U.S. EPA chose to sample indoor air at two homes for the presence of related airborne contamination. Cracks in foundation



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slabs, indoor sumps and drainage piping, or other conduits can act to convey contaminant vapor that has volatilized from groundwater into the home. TCE was not detected in these samples. These results indicate that the TCE is most likely not migrating into the residences in the form of soil vapor.

3.3 Contaminants of Concern/Target Analytes

The primary contaminants of concern in the groundwater are TCE and other volatile organic compounds (VOC). All samples will be analyzed for VOCs.

4.0 Project Description and Schedule

The site assessment will consist of sampling up to two samples from 13 residential wells. START will have one team performing the sampling and sample management for shipment to a U.S. EPA Contract Laboratory Program (CLP) laboratory. Section 6 contains a more detailed sampling design.

The CLP laboratory(s) that samples will be submitted to will be determined by the U.S. EPA Regional Sample Control Center through WESTON's CLP coordinator. Sample labels and chain-of-custody (COC) paperwork will be generated by WESTON START using the Forms II Lite software. Samples will be packaged properly by WESTON START in accordance with CLP protocols and shipped to the CLP laboratory. The turnaround time for the preliminary sample data will be 2 days. The sampling results will be reviewed and validated through the CLP. A summary report of the sampling results will be submitted to U.S. EPA upon receipt from CLP which will be approximately 28 days from sample submittal.

U.S. EPA and WESTON START will perform the sampling on Monday, June 16, 2008. The sampling event is expected to last one day.

5.0 Project Quality Objectives

5.1 Project Objectives

The objective of sampling activities will be to determine any change in direction or migration of the groundwater plume at the Site. More information about the sampling procedures to support this is provided in Section 6.

5.2 Measurement and Performance Criteria

Generic measurement and performance criteria described in the *START III Generic QAPP* will be used. These criteria will ensure that data are sufficiently sensitive, precise, accurate, and



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representative to support site decisions.

5.3 Data Quality Objectives

Data quality objectives address requirements that include when, where, and how to collect samples; the number of samples; and the limits on tolerable error rates. These steps should periodically be revisited as new information about a problem is learned.

Residential well sampling locations have been selected by IDEM in areas adjacent to the groundwater plume. All groundwater samples are to be analyzed for VOCs. The results will be compared to U.S. EPA RALs (see Attachment A). Exceedances will be noted and may be used to initiate a U.S. EPA removal action. In addition, IDEM will use the data and compare results to maximum contaminant levels, State of Indiana public health groundwater quality standards (Title 327 Indiana Administrative Code), and any advisories found in IAC Article 13 Indiana Code.

6.0 Sampling Design

Up to two samples before and after treatment from 13 residential wells will be sampled. The residential well sampling procedures are outlined below. Note that all home owners will have been notified about the sampling prior to the sampling event. U.S. EPA will be present during the sampling and will talk to the home owners concerning the well sampling and address any questions. The following procedure will be followed in the order as shown for collecting samples.

- 1 Locate sampling points within the home. The sampling location should be a spigot or faucet situated on the water line prior to groundwater entering any home treatment system.
- 2 Purge the system for at least 15 minutes prior to performing any sampling.
- 3 Don fresh sampling gloves prior to commencing sampling at each new sampling location, even if the sampling location is in the same home as the previous sampling location.
- 4 Collect water quality parameters using the pH/temperature/conductivity meters. Collect at least two consecutive readings that are within ± 0.1 units for pH, ± 3 percent for conductivity, ± 0.1 °C for temperature; and ± 10 percent for turbidity.
- 5 Collect samples in the designated containers (see Table 2). VOC samples should be collected without aeration devices in place and at the slowest possible flow rate.
- 6 Record all information on the residential well sampling form (Attachment C) or in the site logbook. Data recorded must include all purge data, meter readings, sampling location (address and spigot/faucet location from which the sample was collected), sampling date, and sampling times.



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- 7 Use a unique, repeatable designator to protect the resident's privacy when assigning sample identification designators. Do not use the resident's name or address. Where more than one volume is required at a sampling point, all samples will have the same designator.
- 8 Label all sample jars immediately at the collection site with sample name, date, and time. The sample management person will be responsible for affixing appropriate CLP labels and tags to the sample containers.

All samples will be analyzed for VOCs. Requirements for the sample container, volume, preservation, and QC samples are presented in Table 2: Sampling and Analysis Summary.

6.1 Sample Numbering System

All samples for analysis, including QC samples, will be given a unique sample number. The sample numbers will be recorded in the residential well sampling form (Attachment B) or field logbook, the COC paperwork, and the shipment documents.

WESTON START will assign each sample its unique number. The sample number highlights the suspected contaminated area and location, and will be used for documentation purposes in field logbooks, as well as for presentation of the analytical data in memoranda and reports. The project samples will be identified using the following format:

RWXXX-mmddyy

RW indicates that the sample is from a residential well

XXX will be the house numbered sequentially on Lane St. from County Rd. 106 South

designated as East or West (i.e. house 01E is the first house south of County Road 106 on the east side).

mmddyy will record the sampling date

A field duplicate sample will be identified by adding a "D" to the end of the sample identifier. A trip blank will be included in each cooler of VOC samples. Therefore, if only one cooler is sent, then there will only be one trip blank. The trip blank will be designated as "TB" with a sequential number after the TB that will indicate its ordinal.

Examples of the sample identifications for the Site are as follows:

- RW01E-090507: Residential well, House 1 on the east side of Lane St., collected on May 4, 2007
- RW10W-050407D: Field duplicate of residential well, House number 10 on the west



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- side of Lane St., collected on May 4, 2007
- TB01: First trip blank

6.2 Management of Investigation-Derived Wastes

For purposes of this SAP, investigation-derived wastes are defined as any byproduct of the field activities that is suspected or known to be contaminated with hazardous substances. The performance of field activities will produce waste products, such as spent sampling supplies (e.g., bailers, drum thieves, spoons), and expendable Personal Protective Equipment (PPE). Disposable equipment will be used for all sampling and, therefore, no decontamination water will be generated. All waste generated during the site assessment will be placed in trash bags and disposed of as general refuse with U.S. EPA approval.

7.0 Sampling Procedures

7.1 Sampling Standard Operating Procedures

The following WESTON standard operating procedure (SOP) will be used with some modification as directed by U.S. EPA (procedures set forth in Section 6.0 are those to be followed):

- SOP 202 – Residential Groundwater Sampling

7.2 Decontamination Procedures

General decontamination procedures are described in Section B.2 of the *START III Generic QAPP*. All disposable sampling supplies and PPE will be bagged and disposed of as general refuse with U.S. EPA approval.

8.0 Sample Handling, Tracking, and Custody Procedures

All samples will be identified, handled, shipped, tracked, and maintained under COC, in accordance with the *U.S. EPA Contract Laboratory Program Guidance for Field Samples* dated August 2004.

9.0 Field Analytical Methods and Procedures

9.1 Field Analytical Methods and Standard Operating Procedures

WESTON START will use a water quality meter to determine pH, temperature, and conductivity of the samples collected. The water quality meter will be calibrated and used per the manufacturer's



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instructions and WESTON SOP 202, *Residential Groundwater Sampling*. All calibration information will be recorded in the field logbook.

9.2 Field Testing Laboratory

A field testing laboratory will not be used during the site assessment.

9.3 Screening/Confirmatory Analyses

Screening/Confirmatory Analyses will not be used during the sampling event.

10.0 Fixed Laboratory Analytical Methods and Procedures

CLP laboratories will be utilized for sample analyses. The CLP laboratory for the VOC analyses is:

TBD

The laboratory analytical methods and procedures are detailed in Table 2 of this SAP.

11.0 Quality Control Activities

11.1 Field Quality Control

The number of QC samples collected for each analytical parameter and concentration level are listed in **Table 2: Sampling and Analysis Summary**. The QC sample determination and frequency is in accordance with the *START III Generic QAPP*, Table 4.

11.2 Analytical Quality Control

QC for analytical procedures will be performed at the frequency described in the *START III Generic QAPP*, Tables 5 and 6. In addition, method-specific QC requirements will be used to ensure data quality.

11.3 Performance Evaluation Samples

Performance evaluation samples will not be collected during this sampling event.

12.0 Documentation, Records, and Data Management

Documentation, record keeping, and data management activities will be conducted in accordance



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with the *START III Generic QAPP*, Section B.10.

13.0 Quality Assurance Assessment and Corrective Actions

No field audits will be conducted due to the short-term (one day) duration of the sampling event.

14.0 Reports to Management

Reports to management will be written and distributed in accordance with the *START III Generic QAPP*, Section C.

15.0 Steps 1, 2 and 3: Data Review Requirements and Procedures

Step 1: Data collection activities, including sample collection and data generation, will be verified in accordance with the *START III Generic QAPP*, Section D.

Step 2: Data will be validated by the CLP.

Step 3: Data will be reviewed for usability in accordance with the *START III Generic QAPP*, Section D.

Table 1
SAP Revision Form

Site: Lane St. Groundwater Contamination

OSC: Ken Theisen

TDD: S05-0002-0708-025

Date	Revision Number	Proposed Change to SAP/QAPP	Reason for Change of Scope/Procedures	SAP Section Superseded	Requested By	Approved By
6-12-08	1	Update SAP for 13 additional groundwater samples	Confirmation sampling of residential groundwater after treatment system in place. Lab changed to one procured by ERRS contractor.	Setion 5, 6, and 10	Ken Theisen	

Table 2
Sampling and Analysis Summary

Site: Lane St. Groundwater Site, Elkhart, Elkhart County, Indiana
OSC: Ken Theisen
TDD: S05-0002-0708-025

Matrix	Analytical Parameter	Analytical Method (CLP)	Containers (Numbers, Size, and Type)	Preservation Requirements	Number of Sampling Locations	Number of Field Duplicates	Number of MS/MSDs ²	Number of VOA Trip Blanks ¹	Number of Equip./Rinsate Blanks	Total Number of Samples to Lab ³
Ground-water	VOCs	SOM01.2	Three 40-milliliter glass vials with PTFE-lined septa and open-top screw-caps	HCl to a pH less than 2; cool to 4°C	13	1	1	1	0	15

Notes:

¹ Trip blanks are only required for VOCs in water samples.

² For the samples designated for MS/MSDs, triple volume is required for VOCs and SVOCs and double volume for metals.

³ Total number of samples to the laboratory does not include MS/MSD samples.

°C – Degrees Celsius

CLP – Contract Laboratory Program

Equip. – Equipment

HCl – Hydrochloric Acid

MS/MSD – Matrix Spike/Matrix Spike Duplicate

VOA – volatile organic analysis

VOC – volatile organic compound

ATTACHMENT A

U.S. EPA REMOVAL ACTION LEVELS

ATTACHMENT B
RESIDENTIAL WELL SAMPLING FORM

FIGURES

TABLES